

## Exhibit A

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Genzyme Molecular Oncology  
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#### **EMPLOYMENT**

1983-1985 Scientific Officer, Biochemistry Division, National Institute for Medical Research, London, England

1985-1987 Research Scientist, Protein Engineering Group, Integrated Genetics, Framingham, Massachusetts

1987-1988 Staff Scientist I, Transgenic Group, Integrated Genetics

1988-1989 Staff Scientist II, Head of Molecular Biology, Transgenic Group, Integrated Genetics (now Genzyme)

1989-1995 Senior Staff Scientist, Protein Engineering Corporation (now Dyax)

1995-1996 Senior Staff Scientist, Gene Therapy, Genzyme Corporation, Framingham, Massachusetts

1996-1997 Associate Director, Gene Therapy, Genzyme Corporation

1997-1999 Director, Cancer Gene Therapy, Genzyme Molecular Oncology

1999-2000 Senior Director, Cancer Gene Therapy, Genzyme Molecular Oncology

2000-present Vice President, Applied Genomics, Genzyme Molecular Oncology

#### **EDUCATION**

1974-1978 B.Sc. (Biochemistry), Carleton University, Ottawa, Canada

1978-1983 Ph.D. (Protein Chemistry) University of Ottawa, Ottawa, Canada

## **AWARDS AND SCHOLARSHIPS RECEIVED**

University of Ottawa Entrance Scholarship (1978-1980)

Canadian National Science and Engineering Research Council Postgraduate Scholarship  
(1979-1982)

## **OTHER DISTINCTIONS**

Invited Speaker-1986 Penn State Symposium on Molecular Biology: The Nucleus

Invited Speaker-1988 Virginia Polytech Symposium on Large Animal Transgenics

Invited Speaker- 1989 AgBiotech Conference, Arlington, Virginia

Invited Speaker- 1997 NMHCC on Immunotherapy of Cancer , Bethesda, MD

Invited Speaker- 1998 CHI conference on New Technologies and Applications of  
Vaccines, Palm Beach, Florida

Invited Speaker- 1998 IBC conference on Cancer Gene Therapy, London, UK

Invited Speaker- 1999 IIR conference on Clinical Evaluation of 2<sup>nd</sup> Generation Cancer  
Vaccines, London, UK

Invited Speaker-1999 IBC conference on Immunotherapy for cancer, San Diego

Invited Speaker- 2000 Sabin Institute Colloquium on Cancer Vaccines, Walker's Cay

Co-author of NIH RO1 Grant Application (No CA43186) entitled  
"Mutagenesis of Papovavirus Transforming Proteins (awarded for the period 1986-1991)

## PUBLICATIONS

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Smith, A.E., Kalderon, D., Roberts, B.L., Colledge, W.D., Edge, M., Gillett, P., Markham, A.F., Paucha, E. and Richardson, W.D. (1985). The nuclear location signal. *Proc. Royal Soc. (London)* (B) 226, 43-58.

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Roberts, B.L., Richardson, W.D. and Smith, A.E. (1987). The effect of protein context on nuclear signal function. *Cell* 50, 465-475.

Markland, W., Smith, A.E. and Roberts, B.L. (1987). Signal-dependent translocation of simian virus 40 large-T antigen into rat liver nuclei in a cell-free system. *Molec. Cell. Biol.* 7, 4255-4265.

Rawle, F.C., O'Connell, K.A., Geib, R.W., Roberts, B. and Gooding, L.R. (1988). Fine mapping of an H-2KK restricted CTL epitope in SV40 T antigen using in-frame deletion mutants and a synthetic peptide. *J. Immunol.* 141, 2734-2739.

Dingwall, C., Robbins, J., Dilworth, S.M., Roberts, B. and Richardson, W.D. (1988). The nucleoplasmin nuclear location sequence is larger and more complex than that of SV40 large T antigen. *J. Cell Biol.* 107, 841-849.

Gordon, K., Vitale, J., Roberts, B., Monastersky, G., DiTullio, P. and Moore, G. (1989). Expression of foreign genes in the lactating mammary gland of transgenic animals. In: UCLA Symposia on Molecular and Cellular Biology-New Series 116, 55-60.

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Roberts, B.L. (1989). Nuclear location signal-mediated protein transport. B.B.A. 1008, 263-280.

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Markland, W., Roberts, B.L., Saxena, M.J., Guterman, S.K. and Ladner, R.C. (1991). Design, construction and function of a multicopy display vector using fusions to the major coat protein of bacteriophage M13. *Gene* 109, 13-19.

Roberts, B.L., Markland, W., Ley, A.C., Kent, R.B., White, D.W., Guterman, S.K. and Ladner, R.C. (1992). Directed evolution of a protein: selection of potent new neutrophil elastase inhibitors displayed on M13 fusion phage. *Proc. Natl. Acad. Sci. USA* 89, 2429-2433.

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Roberts, B.L., Markland, W. and Ladner, R.C. (1996) Affinity maturation of proteins displayed on surface of M13 bacteriophage as major coat protein fusions. *Methods in Enzymology* 267: p. 68-82.

Markland, W., Roberts, B.L. and Ladner, R.C. (1996) Selection for protease inhibitors using bacteriophage display. *Methods in Enzymology* 267: p. 28-51.

Murphy, S., Turner, G., Piper, T., Roberts, B., Wadsworth, S., Smith, A.E., Wells, D.J. and Dickson, G. (1996) Adenoviral vectors for gene transfer of full length human dystrophin cDNAs. *Biochemical Society Transactions* 24: p. 277S.

Havenga, M., Fisher, R., Hoogerbrugge, P., Roberts, B., Valerio, D. and van Es, H.H.G. (1997) Development of safe and efficient retroviral vectors for Gaucher disease. *Gene Therapy* 4: p. 1393-1400.

Zhai, Y., Yang, J.C., Spiess, P., Nishimura, M.I., Overwijk, W.W., Roberts, B., Restifo, N.P., and Rosenberg, S.A. (1997) Cloning and characterization of the genes encoding the murine homologues of the human melanoma antigens MART1 and gp100. *Journal of Immunotherapy* 20: p. 15-25

Castleden, S.A., Chong, H., Garcia-Ribas, I., Melcher, A.A., Hutchinson, G., Roberts, B., Hart, I.R. and Vile, R.G. (1997) A family of bicistronic vectors to enhance both local and systemic antitumor effects of HSVtk or cytokine expression in a murine melanoma model. *Human Gene Therapy* 8: p. 2087-2102.

Rosenberg, S.A., Zhai, Y., Yang, J.C., Schwartzentruber, D.J., Hwu, P., Marincola, F.M., Topalian, S.L., Restifo, N.P., Seipp, C.A., Einhorn, J.H., Roberts, B. and White, D.E. (1998) Immunization of patients with metastatic melanoma using recombinant adenoviruses encoding the MART-1 or gp100 melanoma antigens. *Journal of the National Cancer Institute* 90: p. 1894-1900.

Kaplan, J.M., Yu, Q., Piraino, S.T., Pennington, S.E., Shankara, S., Woodworth, L.A. and Roberts, B.L. (1999) Induction of anti-tumor immunity using dendritic cells transduced with adenovirus vector encoding endogenous tumor associated antigens. *Journal of Immunology* 163: p. 699-707.

Wan, Y., Emtage, P., Zhu, Q., Foley, R., Pilon, A., Roberts, B. and Gauldie, J. (1999) Enhanced immune response to the melanoma antigen gp100 using recombinant adenovirus-transduced dendritic cells. *Cellular Immunology* 198: p. 131-138.

Mohr, L., Shankara, S., Yoon, S.-K., Krohne, T.U., Geissler, M., Roberts, B., Blum, H.E. and Wands, J.R. (2000) Gene therapy of hepatocellular carcinoma in vitro and in vivo in nude mice by adenoviral transfer of the *Escherichia coli* purine nucleoside phosphorylase gene. *Hepatology* 31: p. 606-614

Linette, G.P., Shankara, S., Longerich, S., Yang, S., Doll, R., Nicolette, C., Preffer, F.I., Roberts, B.L. and Haluska, F.G. (2000) In vitro priming with adenovirus/gp100 antigen transduced dendritic cells reveals the epitope specificity of HLA-A201 restricted CD8+ T cells in patients with melanoma. *Journal of Immunology* 164: p. 3402-3412.

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Roberts, Bruce "Adenovirus and Other Viral Vaccines" in *Principles and Practice of the Biological Therapy of Cancer*, 3<sup>rd</sup> edition. S. A. Rosenberg, ed. Chapter 18.6.

Gnjatic, S., Nagata, Y., Jager, E., Stockert, E., Shankara, S., Roberts, B.L., Mazzara, G.P., Lee, S.Y., Dunbar, P.R., Dupont, B., Cerundolo, V., Ritter, G., Chen, Y.-T., Knuth, A. and Old, L.J. (2000) Strategy for monitoring T cell responses to NY-ESO-1 in patients with any HLA class I allele. *P.N.A.S. (USA)* 97: p. 10917-10922.

**PATENTS**

R.C. Ladner, S.K. Guterman, B.L. Roberts, W. Markland, A.C. Ley and R.B. Kent  
Directed Evolution of Novel Binding Proteins  
US Patent 5,837,500

R.C. Ladner, S.K. Guterman, B.L. Roberts, W. Markland, A.C. Ley and R.B. Kent  
Directed Evolution of Novel Binding Proteins  
US Patent 5,571,698

A.C. Ley, R.C. Ladner, S.K. Guterman, B.L. Roberts, W. Markland, and R.B. Kent  
Engineered Human-Derived Kunitz Domains that Inhibit Human Neutrophil Elastase  
US Patent 5,663,143

R.C. Ladner, S.K. Guterman, B.L. Roberts, W. Markland, A.C. Ley and R.B. Kent  
Human Neutrophil Elastase and Human Cathepsin G Inhibitors (Filed 2/28/92)  
Priority Date of March 1, 1991 (Filing Date of US 07/664,989)

R.C. Ladner, B.L. Roberts, A.C. Ley and R.B. Kent  
Process for the Development of Binding Mini-Proteins (Filed 2/27/92)  
Priority Date of March 1, 1991 (Filing Date of US 07/664,989)

R.C. Ladner, S.K. Guterman, B.L. Roberts, W. Markland, A.C. Ley, and R.B. Kent  
Improved Epitope Displaying Phage (Filed 2/28/92)  
Priority Date of March 1, 1991 (Filing Date of US 07/664,989)

**Additional Filed Applications entitled:**

**Methods for Identifying Therapeutic Targets**

**Methods of Generating Antigen-Specific Cells and Uses Thereof**

**Compositions and Methods for Gene-Based Vaccines to Provoke T cell Responses**



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